

### III. REMARKS

In the Official Action, Claims 1, 6, 8, 9, 11, 18-21 and 23 were rejected under 35 U.S.C. 103 as being unpatentable over Hennessey (US 6,487,307) in view of DeYong (WO 99/16010), Herbert (US 5,352,329) and Kanno (US 6,069,971), Claims 2-5, 12 and 22 were rejected under 35 U.S.C. 103 as was claim 1 and further in view of Roy (US 6,118,540), Claim 7 was rejected under 35 U.S.C. 103 as was claim 1 and further in view of Juvinal (US 4,066,363) and Maeda (US 5,153,444), Claim 10 was rejected under 35 U.S.C. 103 as was claim 8 and further in view of Langley (US Pat. Pub. 2001/0012392), Claims 13 and 14 were rejected under 35 U.S.C. 103 as was claim 11 and further in view of Lemmers (US 4,641,966), Claims 15 and 16 were rejected under 35 U.S.C. 103 as was claim 11 and further in view of Maeda, and Claim 17 was rejected under 35 U.S.C. 103 as was claim 11 and further in view of Juvinal for reasons set forth in the Action.

Reconsideration of these rejections is requested respectfully in view of the following argument.

In the rejection of claims 1, 6, 8, 9, 11, 18-21 and 23 under 35 U.S.C. 103, the examiner relies on Hennessey to show inspection of manufactured objects by use of an illumination source with an optical sensor to obtain gray level picture data, on DeYong for inspection of objects for defects with an optical system or method, on Herbert for the teaching of inspection of OPC devices for bottom edge wipe defects, and on Kanno to show a controller determining the ratio of distinguishable pixels to the total number of pixels by use of a threshold detector or discriminator plus

a storage area, classification of results, and use of a monitoring device with a visual display.

It is urged that Kanno provides a teaching which is substantially different from that set forth in the present claims. Kanno discloses, with reference to his Figs. 7 and 8, and with reference to the text in column 8 at line 11 through column 9 at line 23, that there is a pattern comparison inspection system employing a pattern data for an electron beam patterning system file for storing pattern data, an occupancy calculating portion for calculating a ratio of a pattern occupying each pixel to each pixel (col. 8 at line 29) from design pattern data, as well as a gray level bit map generating portion for generating a bit map in gray level from the ratio of design pattern data to each pixel obtained at occupancy calculating portion.

It is important to note that the foregoing explanatory material from Kanno relates to a treatment of an individual pixel as is shown in Figs. 4 and 9. In both of these figures, for each pixel, a decision is to be made as to whether a pixel is to be regarded as being white (represented mathematically by a 0), or black (represented mathematically by a 1) as shown in the matrices of Fig. 4, or by a decimal fraction for an intermediary amount of black as shown in the matrices of Fig. 9.

This is in contrast to the last paragraph of present claim 1 which discloses a controller for determining a ratio of the number of distinguishable pixels to the total number of pixels in a band, and wherein, based on the ratio, a threshold detector senses bottom edge wipe in an

OPC device. In other words, the present invention deals with a population of whole pixels, while the foregoing process of Kanno is directed to a quantization of an amount of gray within a single pixel.

Thus, it is clear that the teaching of Kanno is in directed to a characterization of a pixel as being white, black, or gray. However, in the practice of the present invention, one deals with a large number of pixels in a band of pixels representing an image of an edge of an OPC device to determine if there be present a bottom edge wipe (BEW) defect. One is concerned with the number of dark pixels compared to the total number of pixels under consideration (present specification on page 6 at lines 12-13), wherein dark areas of the bottom edge portion of the OPC device due to BEW residue correspond to dark pixels (line 7) while lighter areas of the bottom edge portion correspond to lighter pixels (lines 8-9). There is nothing in the Kanno teaching which would suggest to one skilled in the art just how to interpret an image of BEW residue, in particular, because the present invention provides an analysis of a large number of pixels representing different portions of an image of an edge region of an OPC device, while Kanno deals with a quantization (in the manner of an analog to digital converter) of the amount of gray in a single pixel located on an edge line between a light region and a dark region of an image.

As noted in the argument of the previous response, a feature of the present invention deals with the mode of analyzing data obtained from observation of the OPC device during a stage of the manufacture in order to determine

that the device is acceptable, that the device is free of a defect. Observation is obtained by illuminating a bottom edge area of the OPC device, and by positioning an optical sensor to view the illuminated OPC bottom edge area, as is set forth in the claims. In accordance with the practice of the invention, the optical sensor provides a band of captured illumination having gray level picture data of distinguishable pixels which are darker pixels or lighter pixels, as is disclosed on page 6 of the present specification. The decision process, for determining the acceptability of the OPC device, proceeds by determining a ratio of the number of distinguishable pixels to the total number of pixels in the band for classifying the OPC device. This feature of the invention is not disclosed nor suggested by the cited references, whether considered individually or in combination. Accordingly, the present argument is believed to overcome the rejections under 35 U.S.C. 103 so as to secure allowance of the foregoing claims 1, 6, 8, 9, 11, 18-21 and 23 as well as their respective dependent claims.

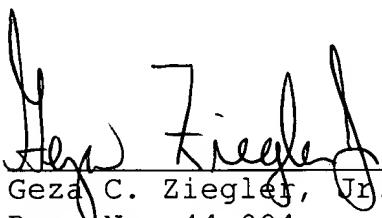
With respect to the citation of Juvinal in the rejection of claim 7, the cited passage (column 8 at lines 22-25) makes reference to Fig. 5 which shows a single signal being applied to a set of comparators. This does not constitute an array of pixels.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is

respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 24-0037.

Respectfully submitted,

  
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25 MAR 2003

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